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EXAMINER	
KARIKARI, KWASI	
ART UNIT	**PAPER NUMBER**
2686	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/500,632	RUUTU ET AL.	
	Examiner	Art Unit	
	Kwasi Karikari	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15,16,26 and 27* is/are allowed.

6)☐ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4,11,12,13,14,21,22,23,24 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by **Haworth** (hereinafter Haworth)

U.S. Patent Number (6,018,312)

Regarding **Claims 1 and 30**, Haworth discloses a method of determining the location of a transmitter in a telecommunications system (transmitter location system, 30) comprising:

a first transmitter unit (reference transmitter, 22) situated at a first, known location (located in Africa, see col. 7, lines 65-67);

a second transmitter unit (unknown transmitter, 10) situated at a second, unknown location (located in US, see col.7, lines 28-30);

a first receiving unit (first satellite 14 and it's corresponding station 18A) at a third, known location (in a geosynchronous orbit) arranged to receive signals (unknown and reference signals) from the first (22) and second (10) transmitter units; and

a second receiving unit (second satellite 16 and it's corresponding station 18B) at a fourth, known location (located in South America, see col. 7, lines 49-55) arranged to receive signals (unknown and reference signals, hereinafter UR) from the first (22) and

second (10) transmitter units, wherein the said signals received by the first (14/18A) and second (16/18B) receiving units are usable to ascertain the location of the second transmitter unit (UR signals are use to calculate the position of the unknown transmitter, see col. 2, lines 25 –48).

Regarding **claim 2**, Haworth discloses a telecommunications system (30) according to claim 1, wherein the signals (UR) are indicative of the time taken for the signals (UR) to arrive at the first (14/18A) and second (14/18B) receiving units from the first (22) and second (10) transmitters (time associated with receivers are not identical due to their relative locations, see col. 8, lines 33-56).

Regarding **claim 4** as applied to claim 1, Haworth's teaching of the satellite 14 and 16 in geosynchronous obit receiving signals from transmitters 10 and 22 (see col. 7, line 30-col. 8, line 9 and Fig. 2), meets the limitation of the first and/or second receiving units are moveable between a plurality of locations and are both arranged to receive a pair of signals (signals UR) when in each of the plurality of locations, the said pair of signals comprising a signal from the first transmitter unit and a signal from the second transmitter unit.

Regarding **claim 11** as applied to claim 4, Haworth's teaching of the satellite 14 and 16 in geosynchronous orbit receiving signals from transmitters 10 and 22 being in different locations as they move (see col. 7, line 30-col. 8, line 9 and Fig. 2), meets the limitations of plurality of locations is three locations.

Regarding **claims 13 and 23** as applied to claims 2 and 22, Haworth's teaching of signal processing at single processing site thereby improving the accuracy of DFO

(see col. 27, lines 46-62 and col. 27, lines 35-35), meets the limitations of wherein the signals are further indicative of their quality or accuracy.

Regarding **claim 14**, Haworth discloses a telecommunications system (30) according to claim 1, wherein the first (14) and second (16) receivers are separate entities (receivers are separate, see Fig. 2, items 14 and 16).

Regarding **claim 21**, Haworth discloses a telecommunications system (30) according to claim 1, wherein the second transmitter unit (10) is in a fixed location (see Fig. 2, item # 10).

Regarding **claim 22**, Haworth discloses a telecommunications system (30) according to claim 1, further comprising a calculation unit (remote processing cite, 34) arranged to use the signals (UR) received by the first (14) and second (16) receiving units or any values derived from the said signals to ascertain the location of the second transmitter unit (10).

Regarding **claim 24**, Haworth discloses a telecommunications system (30) according to claim 22, located within a telecommunications network, wherein the calculation unit is a network management unit (network acquisition system 32 is connected to the central processing computer at unit 34, see col. 8, lines 15-20).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3,5,7,8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haworth** as applied to claim 1 above, further in view of **Effland** (hereinafter Effland) **U.S. Patent Number (5,008,679).**

Regarding **claim 3**, Haworth discloses a telecommunications system according to claim 1, but fails to teach the signals are used to determine the time difference between the arrival times of signals at the first and second receiving units from the first and second transmitters.

Effland teaches a method of accurately locating an unknown transmitter (see col.1, lines 54-60). Effland further discloses that the signals at satellite 15 and 20 are use to determine the time deference of arrival (TDOA) and FDOA which are both use to find the location of the transmitter (see col. 4, lines 20-49).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Effland into the system of Haworth for the benefit of achieving an accurate method of finding the location of the transmitter.

Regarding **claim 5** as applied to claim 4, Haworth discloses the claim invention, but fails to teach a said pair of signals received by the first receiving unit and a said pair of signals received by the second receiving unit are together useable to calculate a range of possible locations of the second transmitter unit.

Effland teaches a method of accurately locating an unknown transmitter (see col.1, lines 54-60). Effland further discloses that the paired generated isodelay and isodoppler lines intersect at the location of the transmitter (see col. 2, lines 40-50).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Effland into the system of Haworth for the benefit of achieving an accurate method of finding the location of the transmitter.

Regarding **claim 7** as applied to claim 5, Haworth discloses the claimed limitations, but fails to teach in each of the plurality of locations the first and second receiving units receive pairs of signals which differ from those pairs of signals received when the first and second receiving units are in others of the plurality of locations and the said different pairs of signals are together usable to calculate different ranges of possible locations of the second transmitter unit.

Effland teaches a method of accurately locating an unknown transmitter (see col.1, lines 54-60). Effland further discloses the plurality of lines generated from signals the location of satellite changes, are use to find where the unknown transmitter lies (see col. 8, lines 20-68).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Effland into the system of Haworth for the benefit of achieving an accurate method of finding the location of the transmitter.

Regarding **claim 8**, Haworth discloses the claimed limitations, but fails to teach the different ranges of possible locations substantially coincide at a single common location that is substantially the location of the second transmitter unit.

Effland teaches a method of accurately locating an unknown transmitter (see col.1, lines 54-60). Effland further discloses that different satellite positions define a region in which the transmitter must lie (see col. 8, lines 60-68).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Effland into the system of Haworth for the benefit of achieving an accurate method of finding the location of the transmitter.

Regarding **claim 10**, as applied to claim 4, Haworth discloses the claimed limitations, but fails to teach in any given location of the first and second receiving units, the pair of signals received by the first receiving unit is a different pair of signals from the pair of signals received by the second receiving unit.

Effland teaches a method of accurately locating an unknown transmitter (see col.1, lines 54-60). Effland further discloses that satellite transponders operate independently, and signals from satellites 15 and 20 are retransmitted at different frequencies, and arrive at different times (see col. 4 lines 20-30).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Effland into the system of Haworth for the benefit of achieving an accurate method of finding the location of the transmitter.

Claims 6,19,28,29,31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haworth** as applied to claim 1 above, further in view of Riley **et al.,** (hereinafter Riley) **U.S. Publication Number (20030125046 A1).**

Regarding **claim 6**, Haworth discloses the claim limitations, but fails to teach the range of possible locations is in the form of a hyperbola in the X-Y plane in which the second transmitter unit is located, the said hyperbola running through substantially the location of the second transmitter unit.

Riley teaches cellular telephone network using a GPS system for locating mobile telephone unit (see Page 2, line [0025]). Riley further discloses the different time of arrival measurement relating to intersection of the hyperbolas that provides the location of the mobile station (see Page 3, line [0028]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Riley into the system of Haworth for the benefit of achieving a system with a conventional position and time offset computation procedure.

Regarding **claim 19**, Haworth discloses the claim limitations, but fails to teach one or both of the first and second transmitter units is a cellular base station.

Riley teaches cellular telephone network using a GPS system for locating mobile telephone unit (see Page 2, line [0025]). Riley further discloses the base station may send GPS acquisition data to the hybrid mobile station (see Page 3, line [0029]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Riley into the system of Haworth for the benefit of achieving a system with a base station which can communicate with the a GPS system.

Regarding **claims 28 and 31**, Haworth discloses the claims limitations, but fails to teach that the first and second transmitters are base stations.

Riley teaches cellular telephone network using a GPS system for locating mobile telephone unit (see Page 2, line [0025]). Riley further discloses base station in the cellular telephone network that provides base station time base referenced to GPS system (see Page 3, line [0030]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Riley into the system of Haworth for the benefit of achieving a system with a base station that can communicate with a GPS system.

Regarding **Claims 29 and 32**, Haworth discloses the claimed limitations, but fails to teach that the transmitters are base stations.

Riley further discloses base station in the cellular telephone network that provides base station time base referenced to GPS system (see Page 3, line [0030] and Fig. 1, items # 11 and 12).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Riley into the system of Haworth for the benefit of achieving a system with a base station that can communicate with a GPS system

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Haworth** as applied to claim 1 above, further in view of **Hunzinger et al.,** (hereinafter Hunzinger) **U.S. Patent Number (6,661,998).**

Regarding **claim 12**, Haworth discloses the claimed limitations, but fails to teach that the signals received by the first and second receiving units are received in response to signals sent to the first and second transmitter units by the first and second receiving units.

Hunzinger teaches mobile station sending and initial request the base station and the base station acknowledging the request, thereby allowing both the base station and the mobile station to communicate to each other (see col. 2, lines 13-31).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Hunzinger into the system of Haworth for the benefit of achieving a communication system where both the mobile and base station could communicate to each other.

Claims 17,18,20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haworth** as applied to claim 1 above, further in view of **Hussa** (hereinafter Hussa) **U.S. Patent Number (6,611,788)**.

Regarding **claim 17**, Haworth discloses the claim limitations, but fails to teach that the one or both of the first and second receivers is a mobile telephone.

Hussa discloses cellular communication network system including a mobile Station, base station, a core network and radio network controllers (see col.1, lines 47-53). Hussa further teaches that the mobile station is may comprise of a cell phone (see col. 8, lines 9-15).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Hussa into the system of Haworth for the benefit of achieving a system with a mobile cell phone that could be tracked.

Regarding **claim 18**, as applied to claim 17, Haworth discloses the claim limitations, but fails to teach the said mobile telephone supports Enhanced Observed Time Difference (E-OTD) location method and Global Positioning System (GPS) location method, or Observed Time Difference Of Arrival (OTDOA) location method and Global Positioning System (GPS) location method.

Hussa discloses cellular communication network system including a mobile

Station, base station, a core network and radio network controllers (see col.1, lines 47-53). Hussa further teaches an E-OTD and GPS methods with the mobile cell phone (see col. 4, lines 31-44).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Hussa into the system of Haworth for the benefit of achieving a system with E-OTD and GPS method of determining time difference between signal receptions.

Regarding **claim 20**, Haworth discloses the claim limitations, but fails to teach one or both of the first and second receivers is a location measurement unit.

Hussa discloses cellular communication network system including a mobile Station (MS), base station (BS), a core network (CN) and radio network controllers (RNC) (see col.1, lines 47-53). Hussa further teaches that location measurement unit (LMU) may be integrated into a base transceiver station (BTS) (see col. 4, lines 21-31).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Hussa into the system of Haworth for the benefit of achieving a system with location measurement unit for finding time of arrival of access burst.

Regarding **claim 25** as applied to claim 22, Haworth discloses the claim limitations, but fails to teach the calculation unit is a Serving Mobile Location Centre.

Hussa discloses cellular communication network system including a mobile station, base station, a core network and radio network controllers (see col.1,

lines 47-53 and col. 4, lines 21-31). Hussa further teaches a serving mobile location center (SMLC) which may be integrated into the radio network controller (RNC).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Hussa into the system of Haworth for the benefit of achieving a system with SMLC where a calculation of time of arrival is stored.

Allowable Subject Matter

3. Claims 15,16, 26 and 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Perl et al., (20050035897 A1) teaches a target location using TDOA distributed antenna.

Holt (20030052821 A1) teaches a method and system for calibrating wireless location system.

Stilp et al., (20050024265 A1) teaches a multiple pass location processor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-2856. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571- 272 5905. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kwasi Karikari
Patent Examiner

CHARLES APPIAH
PRIMARY EXAMINER